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AN AMBULATORY SURGERY SERVICE FEASIBILITY STUDY
AT MADIGAN ARMY MEDICAL CENTER
TACOMA, WASHINGTON

A Problem Solving Project
Submitted to the Faculty of
Baylor University
In Partial Fulfillment of the
Requirements for the Degree
of
Master of Hospital Administration

by

Captain William S. Borders, Jr.

August, 1978

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I. Introduction

Development of the Problem

The rising cost of health care is one of the major issues confronting health care providers and legislative bodies at all levels of government. As these legislative bodies continue to propose and develop regulatory mechanisms to control these rising costs, hospitals and other providers are intensifying their search for methods to lower costs. One program which many observers believe offers such a cost-saving opportunity is ambulatory surgery.

These pressures for cost containment are not confined to the civilian health care sector. The military health services system has also been subjected to the same cost spirals and resource constraints plaguing its civilian counterpart. One concrete example of this cost containment pressure was reflected in the objectives of a recent major study of the system that would "...minimize the overall costs of military medical care."¹

This project is conceived as being responsive to these pressures for cost containment in that it will study the feasibility of initiating an ambulatory surgery program at Madigan Army Medical Center (MAMC). As stated previously,

programs of this type have been shown to provide cost-saving opportunities for civilian hospitals. It remains to be determined whether this type of program can provide these same opportunities given the unique requirements and constraints of a specific military hospital.

Statement of the Problem

The problem is to determine the feasibility of initiating an ambulatory surgery service that will provide improved utilization and cost containment at Madigan Army Medical Center, Tacoma, Washington.

Problem Solving Methodology

A list of appropriate ambulatory surgery procedures that could be performed at Madigan Army Medical Center (MAMC) was developed. This was done through the utilization of three sources: a review of the literature of other hospital's experiences with ambulatory surgery; consultation with several of MAMC's surgeons; and detailed analysis of existing ambulatory surgical services at four local hospitals. These four hospitals were Allenmore Hospital, a 104 bed hospital in Tacoma, Washington; Tacoma General Hospital, a 299 bed hospital; Virginia Mason Hospital, a 300 bed hospital in Seattle; Swedish Hospital Medical Center, a 460 bed hospital in Seattle. The latter two hospitals both have surgical residency programs.

The list of surgical procedures that was developed provided the basis for the accumulation of data reflecting MAMC's experience with these procedures for calendar year (CY) 1977. These data were obtained primarily from 1977 annual reports of the Individual Patient Data System (IPDS) and from available reports of the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Additional data on these surgical

procedures were obtained from records in the MAMC surgical clinics: Obstetrics and Gynecology, Otolaryngology, and Plastic Surgery.

The data that was accumulated was analyzed and a demand model for ambulatory surgery at MAMC was constructed. This analysis was conducted utilizing information obtained from the literature, MAMC staff, and from research conducted in the local civilian hospitals previously specified. The constraints imposed by Army and Health Services Command regulations and directives; Joint Commission on the Accreditation of Hospitals (JCAH) standards; and the teaching and patient care mission requirements of MAMC were also taken into consideration in the development of the demand model.

The demand model was then analyzed to determine the probable impact on utilization factors at MAMC, i.e. length of stay, bed occupancy, physician utilization and overall workload. The impact on other factors such as patient waiting time, surgical residency programs, and MAMC staffing was also assessed. Emphasis was placed on those factors that relate to cost containment.

An integral part of the analysis of the probable impact of the demand model on MAMC operations involved evaluation of the alternative operational ambulatory surgery service models possible at MAMC. Based upon this total analysis of the demand model impact in the context of the alternative ambulatory surgery service models possible, appropriate conclusions and recommendations were developed as to the feasibility of establishing an ambulatory surgical program at MAMC.

The objectives of this study were:

1. To establish a list of ambulatory surgical procedures that can be performed at MAMC.
2. To develop a demand model for these ambulatory surgical procedures.
3. To determine the probable impact of this demand model on future MAMC operations. Emphasis was to be placed on utilization factors as they relate to cost effectiveness.
4. To develop recommendations on models of hospital-based ambulatory surgery programs that could effectively satisfy the projected demand.
5. To determine the feasibility of establishing an ambulatory surgical service at MAMC that will provide improved utilization and cost containment.

Criteria

Criteria for the various analyses conducted in this study, and the resultant recommendations and conclusions were derived from the current literature: research in hospitals with an established ambulatory surgery service; and from consultation with experts in the surgical field (e.g. Chiefs of surgical departments and services at MAMC). Specific criteria applicable to the broad scope of this study were:

1. The list of ambulatory surgery procedures that could be performed at MAMC must be acceptable to the appropriate MAMC surgical department or service chief.
2. The projected ambulatory surgery service must not

be in contravention of any existing Army or Health Services Command directive or regulation.

3. The projected ambulatory surgery service must satisfy the accreditation criteria of the JCAH and the agencies governing the surgical residency programs.

4. To be considered feasible, the projected ambulatory surgical service should result in improved medical care utilization. Reflections of this improvement would include a decreased average length of stay, improved use of surgeons' time, and less inpatient utilization: factors which should lead to lower medical care costs for MAMC. Conversely, the projected ambulatory surgery service must not lead to increased medical care costs at MAMC, and still remain feasible.

Limitations

As a feasibility study, this project will not examine in detail the staffing, operating procedures, equipment or facilities required for the establishment of an ambulatory surgery service at MAMC. Thus no additional personnel requirements or requests for additional equipment and/or facilities can be generated directly from this study's results.

Assumptions

The following assumptions had a bearing on this study:

1. The shift of the selected surgical procedures from an inpatient to an outpatient basis will not result in any decrease in the quality of medical care rendered.

2. The twelve month period selected for collection of the historical data on the selected surgical procedures is a representative sample.

Definitions

For the purpose of this study, the term ambulatory surgery refers to surgery that has the patients arrive, have surgery and be discharged on the same day. The type of procedures included in this concept involves the use of general anesthesia in most circumstances, and are procedures which are normally done on an inpatient basis. An ambulatory surgical service does not include those minor surgical procedures accomplished under local anesthesia that are customarily accomplished in the various surgical clinics or doctors' offices.²

Literature Review

A survey of the literature on ambulatory surgery showed that there are a relatively large number of current articles on this subject. This observation is substantiated by the fact that the Library of Medicine's National Interactive Retrieval Service indicated there were 700 pertinent articles in this subject area since January, 1975. While many of these articles have a clinical orientation not fully applicable to the scope of this study, it nevertheless exemplifies the current interest focused on this medical care topic.

While the concept of ambulatory surgery is not new (comprehensive reports on the successes of such programs were published nearly 70 years ago), the great emphasis in this area has been concentrated within the past ten years. This increased interest was due to several factors including: improved anesthetics and anesthesia techniques which made

such surgery safer; increased use by surgeons of early ambulation of patients following surgery; and the evident potential for cost savings.³

Advocates of ambulatory surgery such as John Ford, co-founder of Surgicenter in Phoenix, have described these potential cost savings as "staggering."⁴ This description is substantiated by published estimates of the potential savings possible on a national scale should appropriate inpatient surgical procedures be accomplished on an outpatient basis. Nellis in 1972 estimated the savings at \$172 million per year⁵ and a more recent Business Week article (1975) placed the estimated annual savings at between \$6 billion to \$15 billion.⁶

At a micro level Hawthorne⁷ and Patterson⁸ have provided examples of the savings incurred by their separate hospitals utilizing such a concept. A similar claim was made by Donald Bridenbaugh in a 1975 article which estimated that \$129,800 was saved during the preceeding year as a result of the ambulatory surgery service he established at Virginia Mason Hospital in Seattle;⁹ these savings have reportedly increased to approximately \$360,000 in 1977.¹⁰

While such reported savings are substantial, the literature indicates that they are not assured in every instance. Weltman cautions that many hospitals may actually experience overall cost increases as a result of initiating such a program. He advises that prior to entering on a program of ambulatory surgery a careful study must be made to evaluate the long term impacts the program may have on hospital operations.¹¹

O'Donovan echoes these findings as he notes that possible cost reductions depend upon the system of reimbursement in the individual hospital. Additionally he notes that a hospital that embarks upon a program of ambulatory surgery that reduces inpatient utilization without a concomitant reduction in staff or bed capacity can incur an increase in total costs and unit costs.¹²

O'Donovan also substantiates a finding of this researcher after an examination of the available literature on the cost containment potentialities of ambulatory surgery: that although there are considerable claims by hospitals of cost savings these conclusions are usually poorly documented. The reader is additionally left uncertain as to what "costs" are actually saved, e.g. patient costs, third-party reimbursor costs, or facility costs. O'Donovan recognized the need for further research in this area.¹³

Other than O'Donovan's comprehensive study on ambulatory surgery, Ambulatory Surgical Centers, the only other detailed analysis on the cost containment potentialities of ambulatory surgery found in the available literature was provided by Elnicki. His review and analysis of the savings possible through substitution of ambulatory surgery for inpatient surgery suggests that the resultant cost savings are not substantial. Elnicki cautions against trends that favor this substitution without additional definitive research.¹⁴

Phalen provides guidance on the construction of a demand model for ambulatory surgery. He recommends that the

health planner should examine the surgical procedures performed at a hospital for a given period of time; then identify these inpatient procedures that could be performed on an outpatient basis; and then estimate the number of these outpatient procedures the surgical staff could accomplish. Phalen notes that approximately 15 to 20 per cent of all inpatient surgical procedures could be done on an ambulatory basis.¹⁵ Other observers have variously placed this estimate at 10 per cent,¹⁶ 25 per cent,¹⁷ and 35 to 40 per cent.¹⁸

There are additional pertinent points raised by the literature that will be brought out later in this study. From what has been discussed thus far it should be evident that the issue of the cost containment potentialities of ambulatory surgery is complex, and that the individual hospital considering such a program should give this area careful attention.

FOOTNOTES

1. Department of Defense; Department of Health, Education, and Welfare; and Office of Management and Budget, Report of the Military Health Care Study-Executive Summary (Washington D.C.; U.S. Government Printing Office, 1975), p. 16.
2. Thomas R. O'Donovan, Ambulatory Surgical Centers: Development and Management (Germantown, MD.; Aspen Systems Corp., 1976), p. 3.
3. Ibid., pp. 4 - 6.
4. John L. Ford, "Outpatient Surgery: Present Status and Future Projections," Southern Medical Journal 71 (March 1978): 312.
5. William L. Nellis, "Surgery, In Brief," Hospitals 46 (1 July 1972): 138.
6. "An Answer to Soaring Hospital Costs?" Business Week (7 July 1975), p. 62.
7. Douglas D. Hawthorne, "Hospital-Based Unit Improves Utilization," Hospitals 49 (October 1, 1975): 62 - 65.
8. Joseph F. Patterson; Albert A. Bechtoldt; and Kenneth J. Levin, "Ambulatory Surgery in a University Setting," JAMA 235 (January 19, 1976): 266 - 268.
9. L. Donald Bridenbaugh, "A Hospital-Based Ambulatory Surgical Unit," in Ambulatory Surgical Centers, p. 110, edited by Thomas O'Donovan, op. cit.
10. Interview with Marc Secord, Assistant Administrator, Virginia Mason Hospital, Seattle, Washington, 6 April, 1978.
11. Allen J. Weltmann, "Maybe You Can't Afford a Short-Stay Surgical Center," Hospital Financial Management (October, 1976): 32 - 36.
12. O'Donovan, op. cit., pp. 11 - 34.
13. Ibid., pp. 33 - 34.
14. Richard A. Elnicki, "Substitution of Outpatient for Inpatient Care: A Cost Analysis," Inquiry XIII (September 1976): 245 - 261.
15. James F. Phalen, "Planning a Hospital Outpatient Surgery Program," Hospital Progress 57 (June 76): 64 - 65.
16. Nellis, op. cit., p. 138.
17. Hawthorne, op. cit., p. 65.
18. Ford, op. cit., p. 312.

II. Discussion

Significant Events Since the Initiation of this Study

There have been two significant events that have occurred since this problem solving project was initiated in October 1977. First, the Department of Pediatrics at Madigan Army Medical Center (MAMC) started a four-bed Day Care Ward for pediatric surgical patients utilizing the ambulatory surgery concept. The first full month of operation of the Day Care Ward was January, 1978. This development is significant in that it is an operational model of the type of surgical program that is being studied in this paper. The motivating forces leading to the establishment of the ward and the current ward operations will be examined in detail later in the discussion.

The second event is related to a significant change in the methodology of measuring workload in Army medical facilities. At present time MAMC is allocated operating funds by Health Services Command primarily on the basis of workload performed. The primary work unit utilized under this system of retrospective budgeting is the Health Care Composite Unit (HCCU) which consists of five elements, each of which is assigned a weight factor. The HCCU thus is the sum of the following:¹

1. The average daily number of hospital beds occupied.

2. 10 times the average daily number of hospital admissions.

3. 10 times the average daily number of births (live births).

4. 0.3 times the daily average number of clinic visits.

5. 0.14 times the average daily number of dental procedures.

The significant change that occurred is in the definition of what constitutes an admission. In the past a patient was not considered to be an admission unless he was in the hospital on a 24-hour basis--the operational definition was that the patient must be "occupying" a bed at the midnight census. The result of this policy was that in the past, patients who were within the scope of an ambulatory surgery program, i.e., being admitted in the morning and discharged in the afternoon, were not considered to be official admissions for workload accountability purposes.

This policy had the effect of discouraging the utilization of ambulatory surgery because of the potential loss of significant workload. This loss can be graphically illustrated when one compares the workload differences between 50 myringotomies done on an ambulatory surgical basis as opposed to the traditional inpatient basis. In the former case credit would not have been given for the admission or bed occupied and the workload would consist of 50×0.3 clinic visits, or 15 HCCU's. Under the traditional two-day inpatient basis the 50 myringotomies would result in a workload of 50×10 (for admission) + 50×2 (for average daily

number of hospital bed days), or 600 HCCU's. The difference of 585 HCCU's possible under such a system points out a major reason why ambulatory surgery was regarded with askance by workload conscious managers.

This disparity has been greatly reduced by a recent change in the definition of an admission. Effective on 1 October, 1977, Department of the Army policy now considers a patient who is officially admitted in the morning and discharged later on the same day as constituting a workload counting admission.² The impact of this change can be shown by reference to the preceding example concerning the 50 myringotomies. Under present policy the HCCU's for the ambulatory surgery would equal 550 as compared to 600 HCCU's for the traditional inpatient stay: a difference of only 50 HCCU's.

Due to administrative delays this policy change did not become known at MAMC until mid-November, 1977, and with its implementation it gave added relevance to this study. With the removal of the deleterious effects of the previous policy concerning the definition of an admission, there has been renewed interest in ambulatory surgery by the MAMC staff. A cost study on this subject thus has increased pertinence. Additionally, the removal of this essentially artificial barrier allows the researcher to perform a cost analysis more comparable to those found in the civilian health sector.

The Organization of Surgical Services at MAMC

MAMC is organized in accordance with Health Services Command regulation 10-1 and the surgical procedures applicable

to this study are performed primarily by two major departments: Obstetrics & Gynecology and Surgery. This latter department consists of several specialty services. These include general surgery, ophthalmology, otolaryngology, anesthesiology and operative, orthopedic, urology, thoracic and vascular surgery, and plastic surgery. MAMC has approved residency training in obstetrics-gynecology, general surgery, otolaryngology, urology, and orthopedics. Additionally, MAMC conducts courses in Operating Room Nursing and Anesthesiology Nursing, and has a residency program in oral surgery.³

The Anesthesiology and Operative Service of the Department of Surgery operates eight surgical suites in which most of the major operations at MAMC are performed. This statement excludes the three delivery suites operated by the Department of Obstetrics & Gynecology. In addition to the surgery performed in these areas the various surgical specialties operate clinics in which some major but mostly minor surgery takes place. These include the following clinics: General Surgery, Plastic Surgery, Gynecology, Otolaryngology, Urology, and Ophthalmology. Table I presents a summary of the episodes of surgery conducted in the eight operating rooms during CY 1977.

The statistics presented here are provided by the Anesthesiology and Operative Service and do not include many of the procedures that are performed in the specialty clinics. To obtain a more total picture of the surgery conducted at MAMC, records were obtained from three of these clinics:

TABLE I
EPISODES OF SURGERY: OPERATING ROOM, 1977

Month	Surgery Episodes		
	Major	Minor	Total
January	514	297	811
February	467	201	668
March	562	269	831
April	548	210	758
May	570	194	764
June	514	182	696
July	471	61	532
August	573	94	667
September	485	51	536
October	463	66	529
November	505	35	540
December	<u>431</u>	<u>59</u>	<u>490</u>
Totals	5103	1719	7822

Source: Monthly Anesthesia and Operating Service Reports,
Madigan Army Medical Center.

TABLE II
CLINIC SURGICAL PROCEDURES WHICH COULD BE
PERFORMED IN AN AMBULATORY SURGICAL SERVICE, 1977

Clinic	Surgical Procedure	Performed as	
		Outpatient	Inpatient
ENT	Myringotomies	22	139
	Ear Wax Removal	520	1860
	Indirect Laryngoscopy	850	5185
GYN	Cervical biopsies	504	-
	Endocervical biopsies	413	-
	Culdcenteses	111	-
	Dilations	19	-
PLASTIC SURGERY	Blepharoplasty	45	6
	Breast augmentation	19	5
	Scar Revision	59	2
	Rhinoplasty	19	27

otolaryngology, plastic surgery and OB-GYN. The difference found between the data reported by these areas and the operating room reports, point out one problem encountered during the research on this study. This is that there is not a central data source at MAMC that consolidates by specialty all the surgery performed in the medical center. There thus may be some errors in the data and calculations found later in this project.

During CY 1977 the various surgery specialties did perform a large amount of outpatient surgery. A rough estimate of this total can be gauged by considering that the Department of Surgery reported in 1977 it performed 25,475 minor surgeries.⁴ Assuming that most of these minor procedures would have been done on an outpatient basis this total can be added to the 2459 minor outpatient procedures reported by the Department of Obstetrics & Gynecology, resulting in approximately 28,000 outpatient surgeries. This total can be compared to the total amount of principal inpatient surgical procedures accomplished by every MAMC specialty during the same time period, 11,465 procedures,⁵ and it should become evident that the great majority of MAMC's surgery is outpatient based. This comparison becomes larger when one considers that the 28,000 outpatient surgery total does not include the surgery done in such areas as the MAMC Emergency Room or Family Practice Clinic; or that only 7,822 of the 11,465 inpatient surgical procedures were accomplished in the eight operating suites (the rest were done in MAMC's clinics).

While the majority of these surgeries done on an outpatient basis are so minor in nature as to rarely require inpatient hospitalization, there are other procedures that were accomplished on an outpatient basis which could fall within the scope of the ambulatory surgery service described in this study. An example can be found in the rhinoplasties performed in the plastic surgery clinic: in 1977 there were 19 of these done on an outpatient basis, and 27 done on an inpatient basis. The point to be made here is that several of the clinics have had a limited ambulatory surgical service despite the drawbacks in workload credit described earlier. This is an issue that will be addressed in greater detail later in the study.

Procedures Amenable to Ambulatory Surgery

Obtaining a list of surgical procedures that fall within the realm of an ambulatory surgery service was time consuming yet relatively simple. Several hospitals have published such lists in articles describing their ambulatory surgery services⁶ and research in the four local hospitals references earlier provided additional input. Also, the surgical staff at MAMC was consulted as to appropriate procedures that are now performed on an inpatient basis that would be amenable to being performed on an outpatient basis.

In analyzing the resultant list it was found that many of the procedures that civilian hospitals considered to be appropriate for an ambulatory surgery service were procedures that were already being commonly done on an outpatient basis at MAMC. A good example of this finding is vasectomies.

At Tacoma General Hospital and Swedish Hospital and Medical Center this procedure is done in the surgical suite as part of their ambulatory surgery service program while at MAMC only two were done on an inpatient basis during 1977; vasectomies have been done on an outpatient basis in military hospitals for many years. Other procedures that fall within this category are scar revisions, blepharoplasties, cervical and endocervical biopsies, culdocenteses, and indirect larygoscopies. A summation of some of these procedures that are accomplished in the Otolaryngology, Gynecology, and Plastic Surgery Clinics is presented in Table II.

In constructing the demand model only those procedures that are presently being accomplished on an inpatient basis at MAMC were utilized. It should be emphasized that the resultant model does not include those ambulatory surgery procedures already being done on an outpatient basis at MAMC. As the data in Table II should point out, these outpatient procedures constitute a significant body of data which will not be included in later cost saving computations.

After analyzing all the aforementioned considerations, and examining the annual IPDS listing of all principal operations, a final list of ambulatory surgery procedures was completed. This list is presented in Table III. A detailed account of the screening process used to refine the final list will be described in the next section on the construction of the demand model. A more comprehensive listing of commonly performed ambulatory surgery which includes many

TABLE III

**A LISTING OF THE AMBULATORY SURGERY
PROCEDURES USED TO CONSTRUCT THE DEMAND MODEL**

Specialty	Surgical Procedure
Ophthalmology	Probing of lacrimal tract Blepharorrhaphy Blepharoplasty
Otolaryngology	Myringotomy Mastoidectomy Stapedectomy Tympanoplasty Intubation eustachian tube Rhinoplasty Tonsillectomy Adenoidectomy Tonsillectomy with Adenoidectomy (T&A)
Abdominal Surgery	Repair inguinal hernia Repair umbilical hernia
Proctological Surgery	Hemorrhoidectomy
Urology	Meatotomy Dilation of urethra Excision of Hydrocele Orchiectomy Orchiopexy
Breast Surgery	Mastectomy, partial
Gynecology & Obstetrics	Bilateral ligation of Fallopian tubes Dilation and Curettage of uterus (D&C) Abortions
Orthopedics	Removal of fixation device Amputation finger
Plastic Surgery	Incisions & excisions skin, lesions. Plastic operation on nose Facial rhytidectomy Augmentation mammoplasty
Dental Surgery	Surgical removal of teeth
Biopsies	Of genital organs Of breast
Diagnostic endoscopy	Laryngoscopy Bronchoscopy Esophagoscopy Cystoscopy

procedures not included in the list in Table III is presented in Appendix A.

Construction of the Demand Model

In constructing a demand model for his cost analysis on ambulatory surgery, Elnicki utilized a sampling of one and two-day stays by Florida Blue Cross patients and a "limited ICDA and some judgements" to extract what he considered were "possible" candidates for ambulatory surgery. While Elnicki did not specify what ICDA criteria or "judgements" were utilized he did note that his methodology did not account for emergency admissions resulting in death, premature one-day obstetrical admissions, or for one-or-two-day surgical procedures that were definitely non-ambulatory cases.⁷

Other judgements on the appropriate length of stay that could be "saved" utilizing ambulatory surgery listed two-to-three-day stays⁸ as appropriate criteria. This was the standard that was used in this study: specified procedures with a length of stay of one-to-three-days were considered to fall within the range of potential candidates for ambulatory surgery.

With this criteria established the next step was to translate the initial list of appropriate procedures for ambulatory surgery into the numerically based International Classification of Diseases, adapted for use in the United States (ICDA) code system. In some instances this presented a problem as the procedure to be coded did not translate directly to the ICDA system. For example, abortion by

vacuum suction was listed under "other anepartum procedures to terminate pregnancy," and mastoidectomies could be coded as either "mastoidectomy, complete or radical" or "other excision of middle ear" (if the procedure was a simple mastoidectomy). With assistance from the MAMC Patient Administration Division it is believed that the translation process was completed with a minimum of error.

A screening process then began with a comparison of the initial list of possible ambulatory surgery procedures against an annual IPDS report which shows the surgery performed at MAMC for 1977 in each ICDA procedure code by total principal operations.⁹ It was decided that to be included in the final list at least ten principal operations must have been completed: this criteria was intended to eliminate a few of the more minor procedures. The final demand model will thus not include all possible candidates for ambulatory surgery; however, it will include the great majority of them.

A second screening process was then initiated utilizing another annual IPDS report which listed each operation separately categorized by ICDA procedure code.¹⁰ This report provided information for each case by diagnosis, disposition, bed days, sick days, post-op days, and whether the operation was a primary or associated procedure. This list was used to extract the principal operations with a one to a three-day bed length of stay and a disposition of "discharge from medical treatment facility." The latter criteria served to

eliminate those one-to-three day procedures that ended in death, discharge from the hospital against medical advice, or transfer to another medical facility.¹¹ This was one of the shortcomings of Elnicki's study that was thus avoided in this analysis.

The result of these screenings was a demand model which reflects a potential demand for ambulatory surgery. It was assumed that the model based on CY 1977 data was an adequate predictor of demand in 1978, i.e. MAMC's staffing and population mix would not alter significantly from 1977 to 1978. Based on this assumption the demand model for ambulatory surgery predicts that 1809 surgical procedures (admissions) could be performed on an ambulatory surgery basis. These procedures account for a total of 3627 bed days. These 1809 procedures account for approximately 27.6 per cent of the 6561 surgical admissions during CY 1977. However, the 3627 bed days only account for approximately 6.9 per cent of the 52,378 total surgical bed days at MAMC in CY 1977.¹² Additional information on the design and analysis process, and a detailed listing of the demand model data is presented in Appendix B.

It is recognized that the design contained many assumptions and criteria which could be faulty. Perhaps a better model could have been built had each medical record been screened by health professionals to determine if the patient were truly a candidate for ambulatory surgery. However, even if the immense resource requirements necessary for such

a project could be obtained, it is likely that the resulting demand model would similarly have a potential for judgemental errors. It is believed that the demand model that has been developed here provides an acceptable representation for the cost analysis to follow.

Models of Hospital-Based Ambulatory Surgical Services

Prior to initiating the cost analysis of the data, a brief survey of the different types of models of hospital-based ambulatory surgical services is appropriate since the type of program MAMC utilizes will have an effect on costs. The first model is an ambulatory surgery service that is specially built for the service; it consists of operating suites and other supporting facilities separate from the hospital's main operating suites. This type of a model can be seen at Swedish Hospital and Medical Center where they have a six operating room ambulatory surgery center located in a building adjacent to the main hospital. In the main hospital there are eleven other surgical suites that are used for non-ambulatory surgery.

The next model utilized existing surgical suites, recovery room and other associated facilities. This model can in turn be broken down into two sub-models. The first has the patients using the recovery room to recuperate from the effects of the anesthesia. The patient would eventually be discharged from this area: he would not go to a separate ward. This type of model is utilized at Virginia Mason Hospital.

The other sub-model has the patient going from the operating room to a specially designated ward in which he would recover and be eventually discharged. This type of model is utilized at Tacoma General Hospital and Allenmore Hospital. It is also the system that is presently being used for the MAMC Day Care Ward mentioned earlier.

Discussions with the administrative staff of each of the four hospitals that use the described models of ambulatory surgery have resulted in each claiming that their system was fully cost effective. A comprehensive examination of this issue to include detailing all the advantages and disadvantages of each model is considered to be beyond the scope of this paper. However, some simple practical points can be made that should narrow MAMC's options essentially to one model, at least in the short run.

To begin, the first model, the specially designed system would entail several months and even years of project design and construction given our relatively slow military system of capital construction. The second model, using the recovery room for recuperation and discharge, similarly requires renovation work as the present facility is inadequate for the ambulatory surgery patient. Even those in favor of this latter model recognize the need for extensive renovation.¹³

This essentially leaves the third model, i.e. utilizing a designated ward for recovery, as the most suitable system, at least in the short run until proper planning and subsequent renovation can take place. This system can also be

said to be the best choice at the present because it has already proven itself at MAMC--the Day Care Ward exemplifies this contention.

The following cost analysis will assume that this third model is the type of ambulatory surgery system model that would be adopted at MAMC. Selection of another alternative would thus require some adjustments in the calculations utilized.

Cost Analysis

Virginia Mason Hospital recently received considerable local publicity when it announced the annual cost savings to patients and insurance companies as a result of their ambulatory surgery service. In obtaining their cost saving data the financial staff of Virginia Mason estimated 1.5 days would be saved per ambulatory surgical case. This figure was then multiplied by Virginia Mason's current average room charges to obtain their total cost saving figures.¹⁴

A similar approach could be utilized at MAMC using the results of the demand model. However, Virginia Mason's cost saving figures were based on charges to patients and insurance companies while MAMC's cost saving figures should be based on the cost to MAMC of providing a day of care for the surgical patient. Such specific cost figures are unfortunately not available for this analysis. This finding was substantiated by a previous researcher who conducted a comprehensive study to determine the cost of a day of care in a MAMC specialty. He failed in his objective and concluded that such a task is

impossible given the present military system of cost accounting.¹⁵

Lacking the specific cost data for surgery patients, the cost data that was utilized was obtained from the annual Patient Care Expense Report (Med-304) for FY 1977. This data reflects average costs for all categories of inpatients and includes in its total the allocation of such expenses as administration, hospitalization, pathology, radiology, pharmacy, centralized material, custodial services, linen, and food service.¹⁶ According to this report an average inpatient day at MAMC cost \$153.50 during the last quarter of FY 1977. Using the demand model date of 3627 occupied bed days for potential ambulatory surgery procedures and estimating that the 1809 procedures/admissions will each utilize 0.5 bed days, the following cost savings can be calculated:

$$\begin{array}{rcl} (3627 - \frac{1809}{2}) & \times & \$153.50 \\ \text{beds occupied} & \text{average cost} & \text{annual savings} \end{array} = \$417,904$$

It is similarly possible to predict the effect on the average length of stay, i.e. the average number of bed days from the date of admission to the date of disposition. Utilizing the figures of 52,378 surgical bed days and 6561 surgical admissions during CY 1977 it should be evident that reduction of these total bed days by the 2723 bed days that could be saved ($3627 - \frac{1809}{2}$) would have the effect of lowering the average length of stay slightly.

Thus, by adjusting the previous cost saving estimate for inflation and by noting the potential decrease in average length of stay, the unwary manager is provided with

apparent evidence that the institution of ambulatory surgery can result in cost containment. There are, however, several other pertinent factors that will have an effect on the actual cost savings possible.

Perhaps the most important of these is related to the surgical waiting list and the average length of stay. MAMC presently has a long waiting list for surgical procedures, especially elective procedures. For example, Otolaryngology Clinic listed 234 cases on the surgical waiting list for December, 1977: the average for the year was over 200 per month. There are two limiting factors controlling this waiting list: the lack of available surgical beds because of nursing shortages, and the lack of adequate staffing of anesthesiologists and operating room nurses in the surgical suites. Of the two perhaps the former is the more restrictive factor. The latter can be strikingly illustrated by a detailed examination of the decreasing workload in Table I.

Combined with these factors are the relatively large number of surgeons at MAMC who are under pressure from the many surgical residency programs to accomplish more surgery than is presently being done. The impact of these factors is that there exists a strong potential for the surgeons to increase their productivity by reducing the long waiting lists. This could be possible as the surgical beds become vacant of the one-to-three day patients that could be handled by the ambulatory surgery service. The average length of stay of the patients on the inpatient wards would increase

as would workload. This combination of factors have prompted at least one observer to predict an increase in the total costs to the hospital.¹⁷ A Lancet editorial echoes this observation:

The ward population soon consists entirely of patients who are seriously ill or helpless or in some way dependent. Nursing care becomes increasingly gruelling, as does the workload on the entire surgical team. Thus the reward for increased enterprise and efficiency (by establishing an ambulatory surgery service) is greater strain on an already creaky edifice.¹⁸

This then is a major potential drawback of the ambulatory surgery service. The reverse of this situation must also be considered, i.e. there are not sufficient additional patients admitted to fill the empty beds created by the ambulatory surgery service. The potential here is for underutilization of resources and a concomitant higher average unit cost for the hospital. Corrective action here requires reduction in operating beds and staff. However, under present staffing patterns and the strong demand for available beds, this situation should not occur at MAMC.

Elnicki suggests another factor to be considered in the cost analysis. This factor concerns the substitution of clinic visits for the one-to-three day inpatient stays by the ambulatory surgery patients. It is assumed that the patients will obtain a clinic visit prior to arriving for the ambulatory surgery and that at least one or two follow-up visits will be made after the surgery.¹⁹ These visits are assumed to be in addition to those that would be normally used by a traditional inpatient. Utilizing an average of

2.5 extra clinic visits at an average cost of \$17.12 (from the Med-304 report), the demand model offers the following costs that would lessen the savings calculated earlier:

1809 annual admissions	x	2.5 average clinic visits	x	\$17.12 average clinic visit cost	= \$77,425 additional cost
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This rough estimate would reduce the previously calculated annual savings to \$340,479 (\$417,904 - \$77,425).

The CHAMPUS workload could also have an impact on the cost savings possible. Unfortunately, exact cost figures could not be obtained from CHAMPUS officials to cover the CY 1977 period (the most recent complete data available is for FY 1976). To obtain an estimate of the potential ambulatory surgery procedures that were sent on CHAMPUS during CY 1977 a survey of the CHAMPUS Nonavailability Statements (NAS) was conducted. The following results were obtained:

<u>Procedure</u>	<u>Total NAS Issued 1977</u>
Abortions	345
Sterilizations (some were specified as tubal ligations)	73
Dilation & Curettage	12
Myringotomies	16
Tonsillectomies, Adenoidectomies or T&A	30
Total procedures	476

Under the present Capitation Budgeting Demonstration system being utilized by MAMC,²⁰ savings can be achieved by bringing "inhouse" some of this workload. Even utilizing the average FY 1976 hospital data there is an indication that savings can be achieved. For instance, in FY 1976

the average hospital cost to the government for abortions was \$328; for myringotomies it was \$317 and for tonsillec-tomies it was \$265. All of these data are more than the average inpatient costs for MAMC in FY 1977. However, the same cautions described earlier in relation to the increased surgical workload still apply.

A final note should be made on the overall impact of ambulatory surgery on workload. Under the traditional in-patient system the 1809 procedures/admissions would have accounted for 21,708 HCCU's. Utilizing ambulatory surgery, the same 1809 procedures/admissions with an average of 2.5 additional clinic visits would account for 21,256 HCCU's, or a difference of only 452 HCCU's. Should the additional clinic visits prove to be 1.5 visits, the difference raises to only 995 HCCU's.

Other Pertinent Factors

A recent report sponsored by the American College of Surgeons noted that an ambulatory surgery program may not provide the proper atmosphere for teaching students.²¹ However, there are successful examples of such a concept working quite well in a university teaching hospital²² and the staff at Virginia Mason Hospital has no difficulties with the mixture of residents in the program. MAMC's Chief of Professional Services believes there would be no problems associated with our residency programs and in fact that such a program would have teaching benefits associated with it. This is partially because our residents (and other staff)

would no longer have to spend their valuable time on ward rounds on the essentially healthy patients the ambulatory surgery caseload represents.²³

Another area of concern is the ability of MAMC to meet Joint Commission on Accreditation of Hospital (JCAH) standards for such an ambulatory surgery service. The fact is that the JCAH has not yet established standards for inspection of these types of units: they are being drafted by the newly formed Accreditation Council for Ambulatory Health Care (a member of the JCAH). The projected date for publication is within four or five months.²⁴ With the wide variations in types of ambulatory surgery services presently being utilized in hospitals it is expected that these standards will be quite flexible and MAMC should have no more difficulties meeting them than the other accreditation standards.

FOOTNOTES

1. The Medical Care Composite Unit (MCCU) is another workload unit and is composed of elements 1 thru 4; the Hospitalization Composite Unit (HCU) is composed of elements 1 thru 3.

2. As reported in Change 6 to Army Regulation 40-400, "Patient Administration," dated 31 October, 1974.

3. Madigan Army Medical Center, MAMC Regulation 10-1, "Organization and Function Policy," dated 7 September 1977.

4. Source of this data was Management Assistance Branch, Comptroller Division, MAMC.

5. Source of this data was 1977 annual IPDS Report PDFY-261, "Surgery Performed in This Hospital for Inpatients Dispositioned During Period," dated 28 February, 1978.

6. Examples are Douglas D. Hawthorne, "Hospital-Based Unit Improves Utilization," Hospitals 49 (1 October 1975): 62 - 65; and B. L. Crouch; J. L. Ford; and W. A. Reed, "The Surgical Center: Concept, Care, Cost in Freestanding Facility," Hospital Topics 49 (December 1971): 69 - 72, 81.

7. R. A. Elnicki, "Substitution of Outpatient for Inpatient Hospital Care: A Cost Analysis," Inquiry 13 (September 1976): 245 - 251.

8. T. R. O'Donovan, Ambulatory Surgical Centers, (Germantown, MD.; Aspen Systems Corporation, 1976), p. 102; James Davis, "One Day Surgery," Hospital Topics 52 (April 1974): 42.; and William Nellis, "Surgery, In Brief," 46 (July 1972): 135.

9. IPDS Report PDFY - 261, op. cit.

10. Source of this data was 1977 annual IPDS Report PDFY - 264, "Operation Index for MAMC," dated 28 February, 1978.

11. Ibid.

12. Source: Management Assistance Branch, op. cit.

13. Interview with LTC Antonio Villamil, Chief, Anesthesiology and Operating Service, MAMC, Tacoma, WA, 22 April 1978.

14. Interview with Marc Secord, Assistant Administrator, Virginia Mason Hospital, Seattle, WA, 21 March 1978.

15. Michael Hinton, "Cost of a Day of Care in the Pediatric Intensive Care Unit," unpublished paper, Madigan Army Medical Center, March, 1977.

FOOTNOTES

16. For background information on this report see Army Regulation 40-331, "Patient Care Expenses," dated 20 August 1976.
17. O'Donovan, op. cit., p. 34.
18. "An Answer to the Surgical Waiting List?" Lancet 2 (1 July 1972): 23.
19. Elnicki, op. cit., p. 250.
20. For background information see McKinsey & Company, Protocol for Conducting the Capitation Budgeting Demonstration (Washington D.C.: McKinsey & Co., June, 1977).
21. American College of Surgeons, "Ambulant Surgery as a Means of Health Care Delivery," In Surgery in the United States: A Summary Report of the Study on Surgical Services for the United States, p. 1282, (Philadelphia: American College of Surgeons, 1976).
22. Joseph Patterson; Albern Bechtoldt; and Kenneth Levin, "Ambulatory Surgery in a University Setting," JAMA 235 (19 January 1976): 266 - 268.
23. Interview with COL. James Gillespie, Chief, Professional Services, MAMC, Tacoma, WA, 5 October 1977.
24. Interview with George Graham, Vice-President for External Affairs, Joint Commission on Accreditation of Hospitals, Tacoma, WA, 24 April, 1978.

III. Conclusions and Recommendations

Conclusions

Approximately two and a half years ago there was extensive interest and discussion among the surgical staff at MAMC on instituting an ambulatory surgery program. The service was to be centralized in the new surgical clinic which was expected to be built in the near future. However, once the staff learned of the negative workload effects that were then possible under Army policy the interest quickly waned.¹ Coincidentally, the "new" surgical clinic has yet to be constructed.

Interviews with the various surgical service and department staff in the early phases of this project substantiated that there was still strong support for the concept of ambulatory surgery albeit with some reservations. These reservations were generally centered around doubts that the ambulatory surgery patients could properly follow pre-operative and post-operative instructions, or concern that young active duty military personnel would not be able to properly rest following the procedures--especially if they lived in the barracks. These are valid reservations which were nevertheless overshadowed by the positive perceptions of the concept.

With the change in workload accounting described earlier a major roadblock to the establishment of such programs was

removed. At MAMC there is additional impetus for such a program because of the shortage of surgical beds and the demand pressures of the surgical residency programs. This was the prime motivation behind the establishment of the Day Care Ward--the pediatric ward was understaffed with nursing personnel and the surgeons were unable to perform sufficient pediatric surgery due to the lack of vacant elective beds. The Inpatient Pediatric Chief proposed the institution of the Day Care Ward to meet this challenge. Early indications show that this solution has, to date, been a success. (Appendix C provides background information on this project).

These same types of nursing personnel shortages exist in other areas of the hospital. With the combination of the strong demand by surgeons for beds; long waiting lists of patients for surgery; a general favorable regard by surgeons for the concept of ambulatory surgery; and the success of the Day Care Ward, it seems inevitable that a similar service will be opened soon for adult patients. As was brought out in the discussion, this program does have the potential for cost savings at MAMC but a potential for increased cost also exists.

It should be evident that the cost saving calculations based on the demand model for ambulatory surgery provides the manager with rough estimates only. There are too many assumptions and contingencies affecting the model and the cost figures to be able to predict with any great certainty that such savings would be achievable. Nevertheless, the

cost analysis provides the manager with the knowledge that there is a potential for savings--if the ambulatory surgery service is implemented in a planned (and conservative) manner. Given the current organizational environment at MAMC it is believed that this goal can be achieved.

This study further points out another important issue. With the change in workload accounting that allows 10 HCCU points for an admission, which can be obtained by admitting and discharging a patient on the same day; there will be a tendency for workload conscious managers to admit many of the procedures that were once done on a purely outpatient basis. This trend can already be seen at MAMC where the Plastic Surgery Service and Obstetrics & Gynecology Department are now (within the past three months) admitting patients for procedures previously done predominantly on an outpatient basis. It is expected that all Army medical treatment facilities (MTF's) will be moving in this direction. The result will be HCCU inflation throughout the system. Because of the competitive nature of this type of reimbursement system, where additional HCCU workload gains the MTF additional resources, it is imperative that MAMC keep pace with this coming inflation. Failure to do so could result in MAMC receiving relatively less resources although its actual workload may remain the same. ✓

In sum, the initiation of an ambulatory surgery service as a means of cost containment and improved utilization is feasible. Conversely, this study points out that there is

a potential for additional cost increases and reduced utilization. The only guarantee for success will lie with efficient and effective management of the ambulatory surgery service program. This is not a new challenge to the military health care manager and this researcher believes it is one that can be met.

Recommendations

Planning will be the key to the successful implementation of the ambulatory surgery service. It is recommended that this be monitored at a central point--the office of the Chief, Professional Services preferably--while the input is obtained from all the MAMC departments, services and divisions which would be involved. It is recommended that a protocol be developed during this planning process. Examples of protocols from Virginia Mason Hospital and Swedish Hospital and Medical Center are provided at Appendix D.

It is recommended that the ambulatory surgery service utilize the organization model being used by the present Day Care Ward, i.e. have the patients sent to a designated ward (ward 9 is one suggestion) to recover. Procedures and training programs will have to be developed to cope with the special needs of these patients. Starting on a small scale, e.g. four beds, will allow for refinement of the protocol and should allow the MAMC staff time to adjust to the system.

The operation of the ambulatory surgery service must be monitored closely to gauge its effect on total workload

throughout the medical center. It is recommended that this aspect be controlled at the departmental level with the Chief, Professional Services, providing any necessary guidance. This part of the program is essential in order to avoid the negative effects described earlier.

Consideration should be given to centralizing the ambulatory surgery service recovery area to one ward. This would mean combining the present Day Care Ward with the proposed adult ward. This issue needs further research prior to implementation but it is suggested that a centralized location could streamline operations and allow for better monitoring.

It is also recommended that the purely outpatient procedures performed at MAMC be surveyed to determine which might appropriately be accomplished on an inpatient, ambulatory surgery basis. Preparation of these procedure lists should be done at the surgical specialty level with approval at the Departmental level. This recommendation is designed to ensure proper workload credit.

It is recommended that MAMC's patient population be apprised of the reasons, and benefits of the ambulatory surgery program through appropriate publicity. There is an evident potential that many patients may feel they are being subjected to "assembly line" medicine because of their unfamiliarity with the concept of ambulatory surgery.²

Finally, it is recommended that additional research be accomplished in this area. At a local level, the question

of the potential savings of bringing in additional CHAMPUS workload should be examined in greater detail once adequate cost data is received by the MAMC Comptroller. A point to be raised in this context is that CHAMPUS does not reimburse on an inpatient basis those CHAMPUS patients who use civilian ambulatory surgery services--despite the cost savings possible. (See Appendix E). Blue Cross and other major third party reimbursers do pay for these services on an inpatient basis. It is recommended that this issue be raised with the Office of CHAMPUS.

Also, the future experiences of MAMC with the ambulatory surgery service should be analyzed, documented and reported to Health Services Command. Should MAMC's experiences indicate that cost savings similar to those described in the discussion actually exist, then there is a potential for very large savings throughout the military health services system. Health Services Command is the appropriate agency to establish policy to encourage wider utilization of this concept.

FOOTNOTES

1. Interview with COL. Richard Hoffmeister, Chief, Professional Services, MAMC, Tacoma, WA, 24 August 1977.
2. Jill Severn, "Step Right Up!" The Seattle Weekly (7 March 1978), pp. 8 - 10.

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APPENDIX A

COMMONLY PERFORMED AMBULATORY SURGERY PROCEDURES

Appendix A. Commonly Performed Ambulatory Surgery Procedures

Abortion, by D&C vacuum suction	Cast change with manipulation
Aristospan injection	Cervical node biopsy
Arthrodesis (phalanges) (Other joints)	Colonoscopy
Arthroplasty (phalanges) (Other joints)	Cataract--by phakoe mulsification
Arthroscopy	Curettage or cauteriza- tion of corneal ulcer
Arthrotomy, meniscetomy	Chalazion
Adhesions of clitoris	Cystogram and pyelogram
Abscess, I & D	Cryoretinopexy
A-V fistula	Culdacentesis
Adenoidectomy and Myring- otomy	Carbuncle, excision
Arch Bars, remover or application	Circumcision
Aspiration of Aqueous	Cystoscopy
Augmentation mammoplasty (unilateral) (bilateral)	Canthus excision
Arthroscopy, Knee	Cryopexy for retinal tear
	Cyst excision
	Cardioversion
	Cryotherapy, alont
	Caudal
Bartholin Cystectomy	Celiac (Splanchnic)
Biopsy-vulva	Cleft lip repair
Bone graft	Capsulectomy
Bone reconstruction	Closed reduction (nose or zygoma)
Bunion operation	Correction hammer toe (re- pair and plastic opera- tion joints of foot and toes
Bursae, removal of (olecranon)	Colostomy, revision
Biopsy - breast	Cautery vaginal cyst
Brachial arteriogram	Cervical amputation (sturmdorf)
Bilateral ocular muscle procedure	Cervical cone
Biopsy, conjunctiva or cornea	Colpotomy, diagnostic
Benign Intraoral lesions	Cryotherapy (alone)
Branchial arch appendages, excision	Cryotherapy (with biopsy)
Basla cell CA, excision	Culdoscopy
Blepharoplasty (upper or lower or comigned)	Culdacentesis
Biopsy liver	Cystectomy-Skene's Duct
Bone marrow biopsy	
Brachial clefts	Dental extraction
Breast implant, removal	Dermabrasion (partial or full)
Breat masses, excision	Dessication of Condyloma
Bronchoscopy	Dorsal slit
	Debridement
	Dislocated shoulder or elbow
Carpal tunnel decompression	Dermoid cyst of eyebrow, excision
Carpal tunnel ligament release	

Discission
Dilation and curettage

Episiotomy
Electroschock therapy
Exostosis, excision
Examination under anesthesia
Excision of Urethral Caruncle
Ectropion and entropion
Enucleation
Eye muscle operation --
 recession (unilateral)
Exostosis, Excision
Esophagoscopy
Excision, foreign bodies
Excision, lesions, skin tags,
 cysts
Excisions of parotid and
 submaxillary stones
Ethmoidectomy
Excision of skin tumors
 (local vs wide or radicle-
 Wilz)
Esophageal dilatation

Fissure in ano
Fistula in ano
Fistulectomy
Foreign body, removal (with
 or without x-ray)
Frenulectomy, tongue--
 in children
Fracture, closed reduction,
 uncomplicated
Fracture, closed reduction
 (with or without x-ray)
Fundoscopic exam in children
Facial wire, removal
Flap revision
Facila and neck lesions
Fulguration of bladder neck
Fasciectomy (finger) (palm)
Foreign Body excision
Foreign body excision,
 with x-ray
Foreign body removal, ear
Fusion

Gastroscopy
Gynecomastiak excision
Ganglionectomy

Hair Transplantations
Hymenotomy
Hysteroscopy

Hydrocelectomy
Hand infections (minor
 and major)
Hemangioma, removal
Hemorrhoidectomy
Hemorrhoidectomy, thrombotic
Herniorrhaphy, inguinal
 (infant or adult -
 unilateral or bilateral)
Herniorrhaphy, umbilical
Hand fasciectomy for
 arthritis
Hammertoes with tenotomies
 and resection of bones
Hardware, removal
Hardware, removal, hip
Hemangioma, nostril

Injection of intervert-
 ebral disc
Inferior Turbinate Fracture
Intercostal neurectomy
Inclusion cyst, excision
Inferior turbinate fracture
Inguinal/scrotal abscess
 I and D
Iridectomy
Intercostal
Impacted wisdom teeth
 removal of
Incision & drainage dental
Intra-oral Biopsy

Jaw, wiring of

Kidney cannula, revision
Keratotomy
Kordiolum

Litholapaxy (Bladder stone
 crusing & removal)
Laparoscopy
Lipoma, excision
Lacrimal duct probing
 or reconstruction
Laryngoscopy
Labia lesion, excision
Ligament repair
Laryngeal polypectomy
Laryngoscopy with op-
 erative procedure
Limited Rhinoplasty
Lymph Node Biopsy
Lesion excision with graft
Limited chemical face peel

Limited face lifts
 Limited septo-rhinoplasty
 Lipectomy

Myringoplasty
 Meloplasty
 Muscle biopsy
 Meatotomy
 Minor Salivary Gland Surgery
 Multiple teeth extractions
 Myotomy--recession or
 resection
 Manipulation of joints (with
 or without x-ray)
 Mass excision with scar
 revision
 Medial ligament, knee,
 repair of
 Metatarsal heads, excision
 Morton's neuroma
 Mastoidectomy
 Mouth biopsy
 Myringotomy with or with-
 out tubes
 Mammoplasty, augmentation
 or revision
 Metacarpal wire removal

Nasal fractures
 Nasal polyp, removal
 Nose, closed fracture
 reduction
 Nerve repair
 Neuroma (other)
 Neurolysis (finger)
 Neuus removal
 Nasal septum repair

Orchiectomy
 Orchiopexy
 Odontectomy, uncomplicated
 Odontectomy, surgical
 Oral surgery
 Olecranon spur, excision
 Open reduction fracture,
 without x-ray
 Osteotomy
 Odontectomy, surgical
 Otoscopy
 Otoscopy (with removal
 foreign body)
 Open and closed zygomatic
 fractures
 Otoplasty

Ptosis
 Perineorrhaphy
 Polypectomy, cervical
 Periodontic surgery
 (full or partial)
 Photocoagulation
 Pterygium
 Phalangectomy
 Planter wart, excision
 Pedicle flap, transfer
 Paracentesis
 Pilonidal cystectomy
 Prostate biopsy
 Pelvic encoscopy (Schirodka)
 Palate biopsy
 Poly tubes, removal
 Preauricular cyst excision
 Periodontal surgery
 Placement dental arches
 Pre-prosthesis surgery
 Partial Keratectomy

Rectal biopsy
 Rhinoplasty
 Rhytidoplasty
 Resection (unilateral)
 Resection (bilateral)
 Removal Mandibular/
 Maxillary Cyst
 Removal soft tissue tumors
 Reduction of minor
 facial fractures
 Reduction of nasal fractures
 Rhytidectomy with blep-
 haroplasty
 Removal breast implants
 Renal biopsy

Scalene node biopsy
 Skin lesions, excision
 Spinal tap
 Septal reconstruction
 Strabotomy, pediatric
 Scar revisions and
 relaxations
 Skin grafts, minor
 Sequestrectomy
 Synovectomy
 Saline injection, intrau-
 terine-therapeutic
 Sturmdorf repair of cervix
 Stapedectomy
 Submucous resection
 Simple tendon repairs

Surgical correction of
prominent ear
Sub-dural tap
Splanchnic (Celiac)
Stellate
Salpingogram

Thyroglossal duct cyst
Tendon repair
Tenosynovectomy
Tenotomy, hand or foot
Trigger finger release
Tonsillectomy, with or
without adenoidectomy
Tarsorrhaphy
Therapeutic retrobulbar
injections
Thoracentesis, closed
Torticollis, repair
Therapeutic abortion
Trans-vaginal ligation
of tubes
Tubal coagulation or
ligation
Tension measurements
in children
Tongue biopsy
Tongue surgery-glossectomy
Tonsillar tag excision
Tympanoplasty
Testes, excision
Testicular biopsy
Tear duct probe

Toenail removal
Testicular prosthesis
insertion

Urethral dilation -
in children
Urethroscopy -
in children
Ulnar nerve transfer
Urethral catheter
Umbilical herniorrhaphy
with bilateral inguinal
herniorrhaphy
Umbilical sinus, excision

Vulva biopsy
Vasectomy
Vasograms
Variocectomy
Varicose vein ligation
Varicotomy
Vaginal stenosis, release
Vaginal tumor, excision
Vaginal web, excision
Vaginoplasty
Ventral femoral hernia
Vermillionectomy (upper
or lower lip)
Vermillionectomy (both lips)

Xanthoma, excision

Z-plasty
Zygomatic arch
Aygoma, reduction

Primary Source: Thomas R. O'Donovan, Ambulatory Surgical
Centers (Germantown, MD.; Aspen Systems Corp. 1976)
Appendix C.

APPENDIX B

DEMAND MODEL SPECIFICATIONS AND DATA

Construction of the Demand Model

1. The construction of the demand model for ambulatory surgery at Madigan Army Medical Center began with the compilation of operatory procedures which could be performed on an ambulatory surgery basis as opposed to an inpatient basis. The procedure list found in appendix A is representative of the initial list utilized.

2. The translation process of the procedures to the codes of the International Classification of Diseases, Adapted for Use in the United States (ICDA) followed the compilation process. As was noted in the discussion chapter, this process was not exact. Annex I of this appendix presents the final list of ambulatory surgery procedures by their appropriate ICDA description.

3. Following the translation process, the two screening processes described in the discussion were completed. The first screening process entailed the utilization of IPDS Report PDFY - 261, "Surgery Performed in This Hospital, for Inpatient Dispositioned During Period," for CY 1977. A sample page from this 14-page report is enclosed in annex II of this appendix. Essentially, this process involved the identification of these surgical procedures done on an inpatient basis at MAMC which could be candidates for ambulatory surgery; and the subsequent refinement of this list of these procedures to those accomplished at least ten times during the year. This criteria was inserted as there are over 400 procedures shown on the inpatient report for 1977, and the elimination from the demand model of these procedures less frequently performed facilitated the manual screening process utilized. It is not believed that the data that was eliminated will significantly alter the final demand model formulated.

4. The second screening process involved the use of IPDS Report PDFY-264 "Hospital Report, Operation Index," for CY 1977. A sample of this 600-page report is enclosed in annex II of this appendix; an index of the codes found in this report are located in Army Regulation 40-400, "Patient Administration," (see bibliography). Essentially, the screening process involved the extraction of the one-to three-day admissions. The results of this process are found in annex III of this appendix.

Annex #1 to Appendix B
Detailed ICDA Descriptions of Ambulatory Surgery
Procedures used to Construct the Demand Model of the Study

<u>ICDA Code</u>	<u>Procedure</u>
06.5	<p>PROBING OF LACRIMAL TRACT</p> <p>Includes: canaliculis, probing and/or irrigation, catheterization of lacrimonasal duct</p>
07.3	<p>BLEPHARORRHAPHY</p> <p>Includes: suture of eyelid, tarsorrhaphy (lateral), V-Y operation (Wharton Jones), Z plasty</p>
07.4	<p>BLEPHAROPLASTY</p> <p>Includes: ectropiaon repair, entropion repair, plastic restoration of eyelid, repositioning cilia base, taroplasty, tensing of orbicularis oculi, transplantation of hair follicles with graft to eyebrow, eyelid, tarsal cartilage.</p> <p>Excludes: canthoplast, epilation of eyelid operations on levator palpebrae.</p>
17.0	<p>MYRINGOTOMY</p> <p>Includes: with or without removal of fluid, paracentesis (typanum), tympanotomy.</p>
17.2	<p>MASTOIDECTOMY, COMPLETE OR RADICAL</p> <p>Includes: modified radical, that for mastoiditis, neoplasm (malis)</p> <p>Requires: Additional code for associated skin grafting (93.3) or tympanoplast (17.6, 17.7)</p>
17.3	<p>OTHER EXCISION OF MIDDLE EAR</p> <p>Includes: apicectomy-petrous pyramid, atticectomy, closure of fistula, extenuation of air cells of petrous pyramid, mastoid antrotomy, removal of outer attic wall, simple masoidectomy.</p>
17.4	<p>STAPEDECTOMY WITH OSSICULAR RECONSTRUCTION</p> <p>Includes: artificial stapes, middle ear graft, middle ear prosthesis (stainless steel) (piston), Schuknect operation.</p>

ICDA Code Procedure

- 17.6 **TYMPANOPLASTY TYPE I (Myringoplasty)**
 Includes: ear drum repair only, epitympanic-type I, repair of perforated tympanic membrane by a graft, skin graft to create new ear drum, skin graft to perforated membrane.
- 17.7 **OTHER TYPES OF TYMPANOPLASTY (TYPES II, III, IV, V)**
 Includes: fenestration in horizontal canal and covered by skin graft which forms small tympanic cavity (type V), graft attached to promontory and small air-containing cavity is developed between round window and graft (type IV), malleus and complete tympanic membrane are replaced by graft (type II,) tympanic membrane graft placed in contact with mobilized and intact staples (type III).
- 17.8 **OPERATIONS ON EUSTACHIAN TUBE**
 Includes: catheterization, inflation, intubation
- 17.9 **OTHER OPERATIONS ON MIDDLE EAR**
 Includes: tympanosympathectomy
- 19.3 **RHINOPLASTY AND REPAIR OF NOSE**
 Includes: closure of perforation of septum tract of bone, cartilage, skin (free), implantation of acrylic substance nasal septum, manipulation for displacement (septum) reconstruction, reconstruction with metal or plastic implant, refracture of nasal bones, rhinorrhaphy, suture-external.
- 21.1 **TONSILLECTOMY WITHOUT ADENOIDECTOMY**
 Includes: complete excision of tonsil tag, partial, that by cryosurgery.
- 21.2 **TONSILLECTOMY WITH ADENOIDECTOMY**
- 21.3 **ADENOIDECTOMY WITHOUT TONSILLECTOMY**
 Includes: removal of adenoid tags.
- 38.8 **REPAIR OF INGUINAL HERNIA EXCEPT RECURRENT**

ICDA Code Procedure

- 51.3 HEMORROIDECTOMY
Includes: cauterization, clamp and cautery, crushing (Smith), excision of hemorrhoidal tags, external, internal, ligation, Whitehead.
- 57.1 MEATOTOMY
- 57.5 DILATION OF URETHRA
Includes: calibration, catheterization of urethra, dilation of urethres-ical junction, removal of calculus without excision.
- 59.1 EXCISION OF HYDROCELE AND HEMATOCELE
Includes: repair of hydrocele, that of spermatic cord tunica vaginalis.
- 59.4 ORCHIECTOMY, UNILATERAL
Includes: cryptorchidectomy, orchidectomy, that with or without epididymectomy.
- 59.7 ORCHIOPEXY
Includes: orchidopexy, orchidorrhaphy, transplantation to and fixation of testis in scrotum.
- 65.2 MASTECTOMY, PARTIAL
Includes: excision of cyst, fibroadenoma, lesion of duct,
Excludes: excision of aberrant tissue or supernumerary breast (65.9), that for gynecomastia (94.5).
- 68.5 LIGATION AND DIVISION OF FALLOPIAN TUBES, BILATERAL
Includes: that of remaining tube, transection
Excludes: Unilateral (68.9).
- 70.3 DILATION AND CURETTAGE OF UTERUS
Includes: diagnostic D & C
Excludes: that following delivery or abortion' (78.1) that for termination of pregnancy.
- 74.7 DILATION AND CURETTAGE TO TERMINATE PREGNANCY
Includes: induced abortion, therapeutic abortion.
- 74.9 OTHER ANTEPARTUM PROCEDURES TO TERMINATE PREGNANCY
Includes: stimulation of uterine contractions by other procedures.

ICDA Code Procedure

- 80.8 REMOVAL OF FIXATION DEVICE (INTERNAL)**
 Includes: that with and without incision.
 Excludes: removal of external fixation
 device and traction (Cast) (Splint)
- 85.0 AMPUTATION AND DISARTICULATION OF FINGER(S)**
 EXCLUDING THUMB
- 92.0 INCISION OF SKIN AND SUBCUTANEOUS TISSUE**
 Includes: aspiration of hemotoma, drainage
 of abscess-carbuncle-cellulitis--
 furuncle-hematoma-paronychia-
 steatoma, exploration of fossa-
 sinus tract-skin, removal of
 foreign body, undercutting of
 hair follicle.
 Excludes: drainage of piloidal sinus (52.0),
 excision of skin or mucous mem-
 brane for graft (donor site)
 (omit coding).
- 92.1 LOCAL EXCISION OF LESION OF SKIN AND**
 SUBCUTANEOUS TISSUE
 Includes: cauterization, debridement, des-
 truction of lesion, fistulectomy,
 fulguration.
 Excludes: that for malignant neoplasm (92.2).
- 94.2 PLASTIC OPERATION OF NOSE**
 Includes: that for correction of bulbous
 nose-deformity of tip of nose,
 flattened nostrils, humped nose,
 long nose
 Excludes: operation performed by otorhino-
 laryngologists (19.3)
- 94.3 FACIAL RHYTIDECTOMY (FACE LIFTING)**
 Includes: facial meloplasty
- 94.4 AUGMENTATION MAMMOPLASTY**
 Includes: that for acquired absence, hypo-
 mastia; that by free dermal-fat-
 fascia graft, implantation of pros-
 thetic material, local pedicle
 graft of dermal-fat, percutaneous
 injection.
- 99.4 SURGICAL REMOVAL OF TOOTH**
 Includes: erupted teeth, removal of residual
 roots, removal of supernumerary
 teeth, sectioning of tooth, un-
 erupted tooth, with removal of
 alveolar base, with resection
 (odontotomy).

ICDA Code Procedure

- A2.2 **BIOPSY OF MALE GENITAL ORGANS**
 Includes: epididymis, penis, prostate,
 scrotum, testis, vas deferens.
- A2.3 **BIOPSY OF BREAST**
 Includes: areola, chest wall female breast,
 male breast, mammary duct, nipple,
 premammary tissue, retromammary
 tissue.
- A4.2 **LARYNGOSCOPY AND TRACHEOSCOPY WITHOUT EFFECT**
 Includes: laryngoscopy, laryngotracheo-
 scopy, tracheoscopy
- A4.3 **BRONCHOSCOPY WITHOUT EFFECT UPON TISSUE
OR LESION**
- A4.4 **ESOPHAGOSCOPY AND GASTROSCOPY WITHOUT EFFECT
UPON TISSUE OR LESION**
- A4.6 **CYSTOSCOPY AND URETHROSCOPY WITHOUT EFFECT
UPON TISSUE OR LESION**
 Includes: cystoscopy, pylescopy, cystoureth-
 roscopy, ureteroscopy
 Excludes: that with removal or destruction
 of calculi (56.8) (57.5).

#Source: U.S. Department of Health, Education and Welfare
Eighth Revision International Classification of
Diseases, Vol. 1, (Washington D.C.: U.S. Govern-
ment Printing Office, 1976), pp. 524-671.

Annex II to Appendix B

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PREPARED 20 FEB 78

SURGERY PERFORMED IN THIS HOSPITAL, IPDS PDY-261 ANNUAL TABLE-09
FOR INPATIENTS DISPOSITIONED DURING PERIOD

WAGGON ARMY MEDICAL CENTER, FORT LEWIS, WASHINGTON

OPERATION AND TITLE	TOTAL PRINCIPAL OPERATIONS	PERSONNEL CATEGORY					PRINCIPAL OPERATION	
		ARMY	OTHER AD MILITARY	MIL OPMO	MIL RET	ALL OTHER	UNDER 28 DAYS	1 MO 15 YR
961 OP FOR TONGUE TIE	3	1		2				
962 GLOSSECTOMY	1			1	1	1		
963 OTHER OP ON TONGUE	1			1				
964 OPERATIONS ON UVULA	1	1						
965 OP FOR CLEFT PALATE	1		1	1				
966 OTHER OP ON PALATE	1			1				
969 OTH OP BUCCAL CAVITY	1			1		1		
970 INC OF JAW WO/DIVISION	1	1						
971 DIVISION OF JAWBONES	34	22	3	9	1	1		
972 EXC/DESTR LETH JAW	2			2				
973 EXC BONE OF JAW	2	1		2	1			
974 EX JOINT STRUCTR JAW	2	2						
975 RP JAW WO/INERT SUBS	1	2		2				
976 RP JAW W/INERT SUBST	1	5		5				
977 REDUCTN DISLOCA JAW	1				1			
979 OTH OPERATION ON JAW	20	17	2	7		2		
980 CL REDU PALAR/ZYGOMA	1		2	1				
981 OP REDU PALAR/ZYGOMA	9	5		2	1	1		
982 CL REDUCTION MAXILLA	2	1				1		
983 OP REDUCTION MAXILLA	1			1				
984 CL REDUCTN MANDIBLE	19	10	2	6		1		
985 OP REDUCTN MANDIBLE	4	2				2		
986 OP REDUCTN ALVEOLUS	1	1						
988 INC SUPPR STRC TOOTH	25	19		4	2			
991 OPERATION ON GINGIVA	1	1						
992 EX DENTAL CYST/TUMOR	5	1	1	3				
993 FORCEP EXTRACT TOOTH	32	8	1	11	12			
994 SUBS REMOVL OF TOOTH	95	63	4	13	19	1		
996 APICEC/FULPECTORY	1	2						
997 ALVEOLOPLASTY	1			1				
998 OTH RP SUPPR STRUCT	5	2		2	1			
999 OTHER DENTAL SURGERY	15	5	1	8	1			

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THIS REPORT SUPERCEDES ALL MONTHLY AND QUARTERLY REPORTS FOR THIS

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PREPARED 20 FEB 78

APPENDIX C

BACKGROUND INFORMATION
PEDIATRIC DAY CARE WARD
MADIGAN ARMY MEDICAL CENTER

ANNEX III to APPENDIX B

Ambulatory Surgery Demand Model Data

ICDA - Procedure	Number of Primary Procedures That Have Bed Days of:				
	1 Day	2 Day	3 Day	>3 Day	Sum
065 - Probe Lacrimal Tract	22	1	0	0	23
073 - Blepharorrhaphy	2	6	2	2	12
074 - Blepharoplasty	1	18	7	18	44
170 - Myringotomy	1	8	0	13	22
172 - Mastoidectomy Compl/Radi	0	13	1	1	21
173 - Oth Exis Middle Ear	1	7	0	2	10
174 - Stapedectomy Reconstr	0	17	2	6	25
176 - Tympanoplasty, Type I	5	39	6	16	66
177 - Other Tympanoplasty	0	8	1	1	10
178 - Op Eustachian Tube	110	8	3	1	125
179 - Other Op Middle Ear	17	2	0	1	20
193 - Rhinoplasty/Rp Nose	2	97	22	85	206
211 - Tonsillectomy Only	2	49	23	36	110
212 - T & A	0	14	6	2	22
213 - Adenoidectomy Only	9	13	0	3	25
382 - Rp Inguinal Hernia	10	25	40	174	249
388 - Rp Umbilical Hernia	2	7	3	17	29
513 - Hemorrhoidectomy	0	0	5	44	49
571 - Meatotomy	21	1	1	5	31
575 - Dilatation of Urethra	23	5	1	15	47
591 - Exe Hydro/Hematocoele	1	12	8	7	28
594 - Orchiectomy, Unilat	0	3	1	7	11
597 - Orchiopexy	2	9	2	2	15
652 - Mastectomy, Partial	0	11	8	9	28
685 - Lig + Div Fallop Bilat	3	119	121	50	293
703 - D & C of Uterus	9	142	11	16	178
747 - D & C to End Pregnancy	8	9	2	8	27
749 - Oth Proceed End Preg	42	143	19	30	234
808 - Remvl Int Fix Device	0	11	5	34	50
850 - Amput/Disart Finger	0	1	3	3	10
920 - Inc Skin/Subq Tissue	1	23	9	101	137
921 - Loc Exe Lesn Skin	13	18	8	81	120
942 - Plastic Op of Nose	0	11	6	19	36
943 - Facial Rhytidectomy	0	1	7	12	20
944 - Augmenta Mamoplasty	0	2	0	8	10
994 - Surg Removl of Tooth	7	18	21	49	95
A22 - Biop Male Genita Org	0	20	14	28	62
A23 - Biop of Breast	0	19	3	7	29
A42 - Laryngo/Tracheoscopy	1	15	1	20	43
A43 - Bronchoscopy WO/Biop	1	12	3	49	68
A44 - Esophago/Gastroscony	7	12	5	101	125
A46 - Cystos/Urethroscopy	72	37	21	131	261
Totals	404	992	413	1220	

Ambulatory Surgery Demand Model Data

Calculations

1. Total procedures with one-to three-bed days:

$$\begin{array}{rcccccl} 404 & + & 992 & + & 413 & = & 1809 \\ \text{one-day} & & \text{two-day} & & \text{3-day} & & \text{Total (also is number admissions)} \end{array}$$

2. Total bed-days for procedures with stays of one-to three-bed days:

$$\begin{array}{rcccccl} (404 \times 1) & + & (992 \times 2) & + & (413 \times 3) & = & 3627 \\ \text{one-day} & & \text{two-day} & & \text{3-day} & & \text{Total} \end{array}$$

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.

REFERENCE OR OFFICE SYMBOL

AFZH-MD-PED

SUBJECT

Pediatric Day Ward

TO SEE DISTRIBUTION

FROM C, Inpt Pediatric Svc

DATE 28 Nov 77

CMT 1

1. There has been general support for the concept of a Pediatric Day Ward in which patients, particularly those for minor surgical procedures, could be admitted to HAMC for 1 day only. These patients would be brought to the hospital on the morning of their procedure and be discharged that afternoon. Although Ward 1 has accepted such patients intermittently in the past, the disparity between the inpatient census on Ward 1 and the nursing staff assigned to take care of them does not allow that to occur at this time. The Department of Nursing has provided a 91C, however, to take care of such patients.
2. An area on Ward 1, consisting of a 4 bed ward unit, has been selected for use as the Pediatric Day Ward. This area is located on the B side of Ward 1. This unit will initially have a 4 bed capacity, however, might be ultimately expanded to 6 beds at a later date if that seems feasible. *(... proposed recovery room 91C)*
3. The principle governing the Pediatric Day Ward will be that patients will be electively preadmitted 1 working day prior to their surgical procedure. The patient will come to the Pediatric Day Ward where the 91C in charge of that unit will make sure that the patient's paperwork is complete, will weigh and measure the patient, and will obtain routine vital signs. The patient will then go home overnight and return to that ward in the morning prior to surgery at which time repeat vital signs will be obtained and the patient will be pre-medicated and sent to surgery. Upon return from recovery room, the patient will have vital signs taken again, and will be discharged to home. This ward is available only to patients who are undergoing procedures which would ordinarily allow a patient to go home that same day. It is not to be used for patients who must stay overnight. Surgical complications may, however, require a patient to stay overnight at which time they would be moved to another part of Ward 1. No patient would remain on the Pediatric Day Ward census overnight.
4. The admission procedure for elective admissions to the Pediatric Day Ward will remain the same as for elective admissions previously. That is, patients will come to the clinic which is admitting the patient (such as ENT) where admission forms will be filled out. Patients will then take those forms to the Admissions Office and return to that clinic for stamping up of paperwork, and referral to the laboratory, x-ray, and anesthesia service. Upon returning from these areas, the patient will take his packet of paperwork to the Pediatric Day Ward as described above. It is essential that the patient's admission doctor's note and doctor's orders be completed prior to the patient's coming to the Pediatric Day Ward. This will allow the 91C assigned to this ward area to have the premedication ready for the following morning. Verbal orders will not be accepted. The clinic originating the admission and the parents will be responsible for transporting the patient throughout the hospital. This would ordinarily involve operating room personnel when patients go to that location. The 91C assigned to the Pediatric Day Ward and the regular Ward 1 staff will not be responsible for taking patients throughout the hospital.
5. The clinics admitting patients are responsible for instructing parents regarding special instructions for the night prior to surgery such as remaining NPO, special

AFZH-MD-PED

28 Nov 77

SUBJECT: Pediatric Day Ward

bathing procedures, etc. The 91C assigned to the Pediatric Day Ward will pass out a special instruction sheet for each individual clinic if these sheets are provided by the respective clinics. In addition, she will make sure the parents understand those instructions. In addition, the child and parents will not enter the Ward 1B side through the Ramp 3 entrance. This would involve them going through inpatient areas to the Pediatric Day Ward. The outside entrance on the end of the building housing Ward 1B will be the entrance utilized by those patients. Copies of a map will be distributed to the various clinics showing how the patient can get to that outside entrance. Further, a sign will be placed over that door.

6. As we have done in the past, we request that you provide the name, age, type of procedure and date of admission for these patients during the week prior to admission. Please specify those patients on your list which are for the Pediatric Day Ward as being separate from those for elective admission to the remainder of Ward 1.

7. Please keep in mind that the census for this nursing unit will remain limited at 4 beds initially. This limitation is made necessary by the fact that the 91C provided by the Dept of Nursing has no previous pediatric experience and will have to function somewhat independently. She will come under the supervision of the head nurse on Ward 1. If, as time passes, it becomes apparent that a higher census can be maintained, the maximum census will be raised as seems appropriate. We anticipate that the Pediatric Day Ward will be available for pre-admissions on 2 Dec 77 for actual admission to the unit on 5 Dec 77. Because of the small number of beds available, the various surgical services will have first choice for these beds. Should additional beds be available, pediatric medical patients might be placed in this area from time to time. The same rules governing admission and discharge will be in effect for pediatric medical patients.

8. The Pediatric Day Ward is suggested as a possible alternative to further reductions in the elective admissions to Ward 1. We hope that this will answer a significant need and that the various services admitting patients to this unit will continue to cooperate in the best interests of the health and safety of the children as they have done in the past. Thank you for your cooperation.

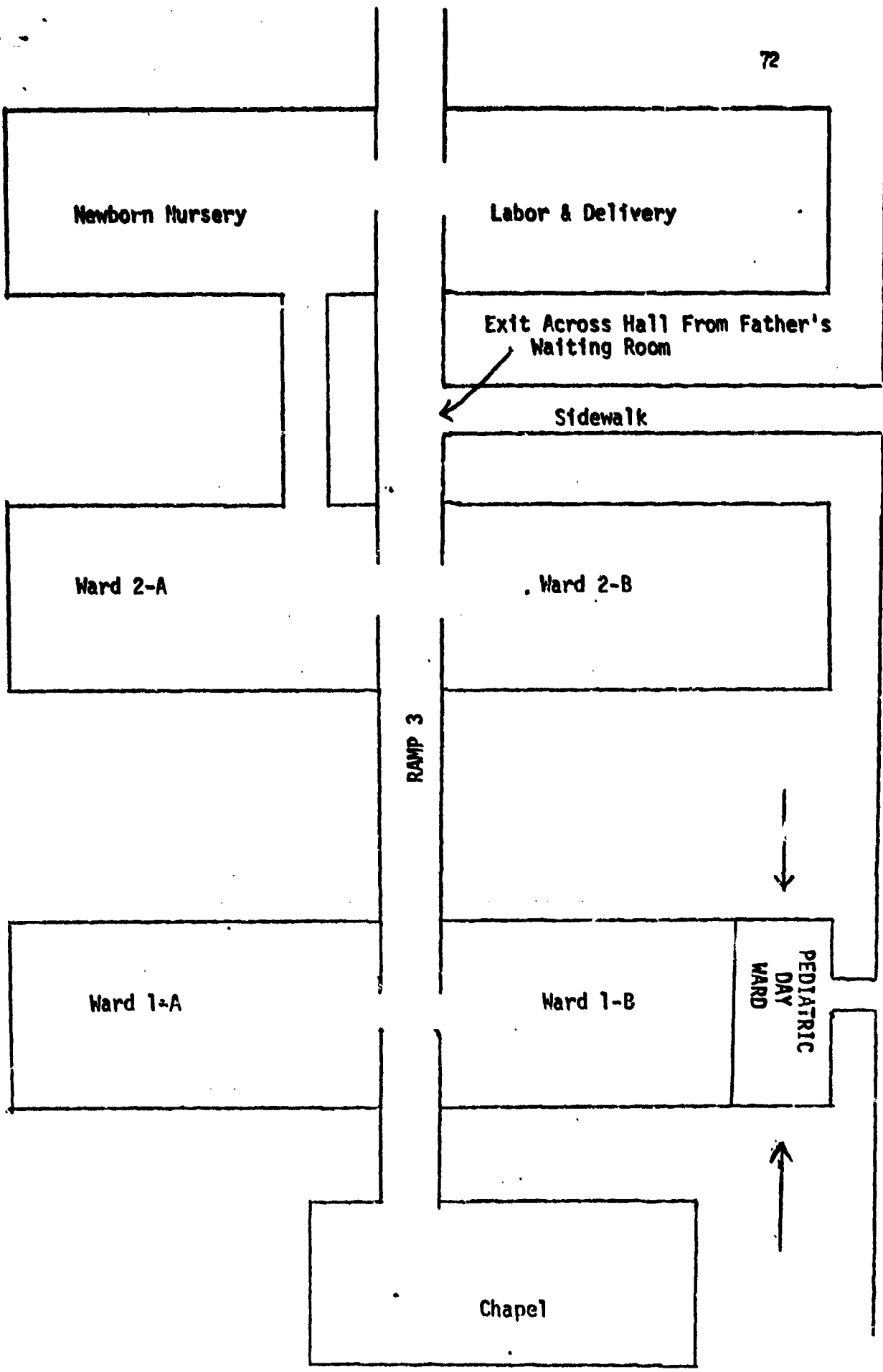
1 Incl
Map

Warren H. Toens
WARREN H. TOENS, M.D.
MAJ, MC
C, Inpatient Pediatric Service
Ward Officer - Ward 1

DISTRIBUTION:

C, Family Practice
C, ENT
C, General Surgery
C, Orthopedics
C, Neurosurgery
C, Urology
C, Plastic Surgery
C, Adolescent Service

C, Ophthalmology
C, Oral Surgery
C, Pediatric Outpatient Svc
C, Maternal & Child Care
C, Well Child Clinic



Newborn Nursery

Labor & Delivery

Exit Across Hall From Father's
Waiting Room

Sidewalk

Ward 2-A

Ward 2-B

Sidewalk

RAMP 3

Ward 1-A

Ward 1-B

PEDIATRIC
DAY
WARD

Chapel

AFZH-MD-PED

Pediatric Day Care Ward

xx THRU: C, Dept of Pediatrics

C, Inpatient Pediatric Svc

1 Feb 78
WHT/sj/6743

TO: SEE DISTRIBUTION

1. The end of January marks the end of the first full month of operation of the Pediatric Day Care Ward centered on Ward 1. This ward has a maximum bed capacity of 4 beds and is available for hospitalization for infants and children during the day time hours only on Monday through Friday. This facility is operated by E2 Jean Geiger who was assigned to Ward 1 specifically upon arrival at MAMC to operate this facility. The express purpose of this facility was to provide inpatient bed space for infants and children requiring minor surgical and medical procedures. These patients were frequently the first to be cancelled in times of bed shortages.

2. Since the opening of the Pediatric Day Care Ward, no patients have been cancelled because of lack of bed space from the Pediatric Day Care Ward. This facility has served a total of 33 patients (see inclosure) during the 20 working days in January. This averages out to 1.65 patients per working day. On some days, the facility is filled. The Pediatric Day Care Ward has demonstrated itself to be a great success, although it could be more heavily utilized if more patients could be admitted to that facility to keep all 4 beds filled.

3. I do have several suggestions for the more efficient operation of this facility:

a. Please note on your admission forms that the patients are being pre-admitted. Otherwise, the Admission Office counts the hospital days beginning on the day when the patient arrives in Admissions, not on the day of hospitalization.

b. If a urinalysis must be obtained on admission by placement of a small urine bag, this can be done on the Pediatric Day Care Ward. Please ask the parents to come to the Pediatric Day Care Ward prior to going to Admissions so that the bag may be worn on the parent's and child's trip throughout the hospital rather than waiting for them to return at the end of the day to the Day Care Ward for placement of the bag. This will shorten the parent's stay at MAMC on the pre-admission day.

4. Thank you very much for your cooperation in helping this innovative approach to inpatient care to be a success.

1 Incl
asWARREN H. TOEWS, M.D.
MAJ, MC
C, Inpatient Pediatric Service
Ward Officer, Ward 1DISTRIBUTION:
See next page

AFZH-MD-PED

1 February 1978

SUBJECT: Pediatric Day Care Ward

DISTRIBUTION:

Dep Commander, MAMC

C. Dept of Nursing

C. Maternal & Child Care

C. Family Practice

C. ENT

C. General Surgery

C. Orthopedics

C. Neurosurgery

C. Urology

C. Plastic Surgery

C. Adolescent Service

C. Ophthalmology

C. Oral Surgery

C. Pediatric Outpatient Sec

Head Nurse, Ward 1

DAY CARE - Ward 1

75

Jan 78

<u>NAME</u>	<u>AGE</u>	<u>ADMITTED</u>	<u>SS #</u>	<u>DIAGNOSIS</u>
RICE, Debbie		4 Jan	0420	Cystoscopy
CANNON, David		4 Jan	7743	Cystoscopy
TONEY, Christopher		4 Jan	7197	Cystoscopy
SCHLOTTMANN, Brian		6 Jan	1125	Cystoscopy
LOVER, Matthew		9 Jan	1409	Cystoscopy
SWADER, Kimberly		9 Jan	7783	Venogram
JARLOW, Joshua		12 Jan	9359	Hydrocelectomy
BURGESS, Shawn		13 Jan	1658	Cystoscopy
LORENZ, Marie		13 Jan	1951	Cystoscopy
ALLISON, Gregory		13 Jan	4295	Cystoscopy
LOVER, John		16 Jan	1409	Cystoscopy
SHIELDS, Kimberly		16 Jan	6082	Cystoscopy
HENDRIX, Hannah		17 Jan	9664	PE tubes
FOSTER, Sean		17 Jan	8654	PE tubes
FLORETTA, Jennifer		20 Jan	2675	Cystoscopy
MILLER, Jason		20 Jan	3503	Cystoscopy
WERRE, James		20 Jan	5960	Hernia repair
PIOTROWSKI, Meredith		23 Jan	2898	Eye surgery
GRIFFIN, Daniel		23 Jan	3294	Inguinal hernia
REVIS, Anthony		23 Jan	1135	PE tubes
GOULD, Andrew		25 Jan	4054	Electrocautery of nose
MOTLES, Robert		25 Jan	5784	Hernia repair
ROBBINS, Kevin		25 Jan	4556	Hernia repair
YOUNGBLOOD, Rhiannon		25 Jan	6692	PE tubes
HAIL, Sherry	8 yrs	27 Jan	8630	Cystoscopy
BLACK, Kathy	2 yrs	30 Jan	0921	PE tubes
BENNETT, Dorothy	4 yrs	30 Jan	9893	Cystoscopy
SMITH, Dylan	19 mos	30 Jan	9889	PE tubes cancelled
HICKS, Eric	18 mos	30 Jan	8757	Exam of eyes cancelled
MILLIS, Robin	5 yrs	30 Jan	6750	EEG
ADAMS, George	4 yrs	31 Jan	1893	PE tubes & adnoidectomy
ANDERSON, Tiffany	5 yrs	31 Jan	7464	PE tubes
WHITNEY, Ronny	3 yrs	31 Jan	8872	PE tubes

TOTAL: 33

APPENDIX D

PROTOCOLS FROM VIRGINIA MASON HOSPITAL AND
SWEDISH HOSPITAL AND MEDICAL CENTER

POLICIES AND PROTOCOL FOR DAY SURGERY

I. Purpose

The development of an efficient and economic surgical suite for minor surgical procedures done on an outpatient basis.

II. Staff

Physicians practicing in the Day Surgery must be members of the staff of The Swedish Hospital Medical Center and must operate within those privileges.

III. Surgical Procedures

A. Indications: Minor surgical procedures from which the patient can recover sufficiently to care for him/herself at home.

B. Contraindications:

1. Hospitalized in-patients, unless cleared through the department head.
2. Surgical procedure with expected postoperative problems, such as hemorrhage.
3. Open-operative procedures of the cranium, thorax or abdomen.
4. Patients with medical illness which will require careful postoperative care, such as:
 - a. Insulin dependent diabetes with severe control problems.
 - b. Patients on full anti-coagulation therapy.
 - c. Severe cardiac disease, on propranolol therapy.
 - d. Severe respiratory disease and acute respiratory disease.
 - e. Patients on medication for seizure disorders, with recent history of seizures, unless there is a note by their managing physician on the patient's chart.

IV. DAY SURGERY POLICIES

A. Operating Time

1. General or regional anesthesia cases - 8:00 a.m. until 3:00 p.m.
2. Local anesthesia - 7:30 a.m. until 3:00 p.m.
3. Recovery Room - 7:30 a.m. until 7:00 p.m.

All surgical procedures must be completed by 3:00 p.m., and those scheduled procedures which the Anesthesiologist in-charge does not feel can be reasonably completed by 3:00 p.m. will be cancelled.

All patients must report to the Registration Desk one hour before scheduled procedure.

Late patients or physicians must be re-scheduled to not delay following cases.

B. Pre-Surgical Evaluation

1. Medical History and Physical Examination must be completed by a physician in compliance with the Rules and Regulations of The Swedish Hospital Medical Center.
 - a. Medical History - 3 months current
 - b. Physical Examination - 3 weeks current
2. Preoperative diagnosis and planned procedure must be noted by the Surgeon.
3. Preoperative anesthesia evaluation and note.

C. Laboratory Studies

These studies must be completed by the SHMC Laboratory and must be current studies. The ECG may be done anywhere but must be available in the medical community. Blood and urine studies must be completed within one week of surgery and the ECG within six months of surgery, unless the patient's physical status indicated a more recent study.

1. Class I - General or Regional Anesthesia
 - a. Healthy - Hct and chemical urinalysis
 - b. Healthy - On diuretic therapy
Hct and chemical urinalysis
Electrolyte study
 - c. Cardiac problems or major systemic disease
Hct and chemical urinalysis
ECG
Electrolyte study
2. Class II - Local Anesthesia
 - a. Hct and chemical urinalysis - if case scheduled for more than 30 minutes
 - b. Kidney Center patients or other patients who receive frequent, recent lab studies, need no further studies
3. Class III - Non-surgical procedures
 - a. Block procedures - No studies
 - b. Non-surgical therapy - No studies

All tissue specimens removed in Surgery must be submitted to Pathology for examination.

D. Oral Intake Restrictions

1. Class I - General and Regional Anesthesia
 - a. Persons over 2 years of age:
No solids by mouth for 8 hours preoperatively
No liquids by mouth for 6 hours preoperatively
 - b. Persons 2 years and under:
No solids or milk by mouth - 8 hours preoperatively
May have sugar water up to 4 hours preoperatively
Must be without anything by mouth for 4 hours preoperatively
2. Class II - Local Anesthesia
No intake restrictions unless indicated by physician, but the above is recommended.
3. Class III - Non-surgical procedures
No restrictions unless indicated by physician

- E. Patients must have informed, signed consent for the operative procedure and anesthetic in accordance with the guidelines of SHMC.
- F. Patients should be informed that it is possible that they may be admitted to the hospital by their surgeon, anesthesiologist or physician, if it is felt to be in their best interest.

V. Discharge

- A. All patients will be advised as to procedure for contacting their physician or the Emergency Room in the event of postoperative problems.
- B. All patients will receive a postoperative instruction sheet which will advise them of their responsibilities during the 24 hours of post-anesthesia recovery.
- C. All patients must have a responsible adult escort to accompany them home from the hospital, unless they have received only local anesthesia. Adult escort may include cab driver at the discretion of anesthesiologist in charge.
- D. Patients who receive general anesthesia must be accompanied to the Lobby by hospital personnel.
- E. The patients receiving only local anesthetic and/or sedation may be discharged directly from the unit to their escort, if any, at the head nurse's discretion. Local patients receiving sedation, and escorting themselves, must remain in the unit for a minimum of 4 hours after the sedation.
- F. Patients receiving general or regional anesthesia must have a written discharge by the anesthesiologist. An anesthesiologist will be physically present in Day Surgery until all patients are "street fit", or until the Recovery Room nurse agrees that the patients are stable.

- G. Patients receiving local anesthesia must have a discharge order from a physician.
- H. Patients discharged, but escort not arrived by 7:00 P.M., will be escorted to hospital lobby and sent home by cab at patient's expense.

VI. Scheduling

- A. Procedures must be scheduled through the main surgical scheduling desk and will be taken on a first-come-first-serve basis.
- B. Procedures scheduled on the day of surgery will be handled through the Day Surgery registration desk and will be taken only on the basis of available scheduled time.

VII. Physician Office Procedure

- A. Obtain patient information data.
- B. Schedule case and note time.
- C. Advise Day Surgery if a frozen section tissue examination may be needed.
- D. Give patient pre-registration form with surgeon's name, date of procedure, time of arrival to Day Surgery (one hour pre-operatively), and time of scheduled operation.
- E. Advise patient:
 - 1. Do not be late - as case may be cancelled.
 - 2. Note parking.
 - 3. Read book and follow intake regulations.
 - 4. Be sure to have an adult escort after surgery unless only local anesthesia is needed.
 - 5. Set up needed special laboratory studies and ECG (chemical urinalysis, Hct and some PPT can be done in Day Surgery).
 - 6. If there are questions or patient wants to talk to the anesthesiologist, an appointment may be made through the Day Surgery desk.
 - 7. Bring a urine specimen.

Revised 3/77

Approved by:
Surgical Section 3/77
Anesthesia Section 3/77
Allan W. Lobb, M.D.
Medical Director 4/5/77

VIRGINIA MASON HOSPITAL

PROTOCOL FOR SHORT STAY SURGERY SERVICE

"a little dated"

- I. Purpose - To provide more efficient and economic minor surgical and diagnostic procedures for our patients through a "single day" admission, operation, and post-anesthetic recovery procedure.
- II. Indications - In general, diagnostic or surgical procedures requiring a short anesthetic are suggested. These include, but are not limited to, laparoscopies, cystoscopies, D&C's, minor surgical excisions, minor orthopedic procedures such as cast changes, manipulations, etc.
- III. Contraindications
 - a. Surgical and Anesthetic - Any procedure carrying known possible delayed post-anesthetic or surgical complications requiring medical treatment should not be done in the Short Stay Service. For example, post-operative septicemia, hemorrhage, airway problems, impaired vision, or procedures requiring prolonged post-operative observation.
 - b. Medical - Patients with significant medical illness requiring daily or frequent adjustment or evaluation and which might be altered by the stresses of starvation and surgery. For example, insulin dependent or control problem diabetics, anticoagulated patients, severe cardiacs, respiratory diseases, seizure disorders*, patients on high doses of steroids, and patients with acute genitourinary illnesses.

* Well controlled seizure disorder patients may be allowed to go on the Short Stay Surgery Service only with written permission from their managing physician.
 - c. Administrative - Because these patients undergo an accelerated admission and discharge routine, they should not be very elderly or have difficulty ambulating. They should not have infections requiring their treatment as contaminated cases in surgery and precluding their admission to the PARU. All should be instructed that they may be asked to stay near the hospital if they live more than one hour away. This requirement may be waived upon approval of the staff surgeon and staff anesthesiologist. This will be decided upon following the procedure.

IV. Procedures for Admission to Short Stay Service

- a. A history and physical is acceptable when done within one month prior to admission of the patient to the hospital, providing the admission is for the same illness for which the examination was made, with an interval note in the chart by the surgeon upon admission indicating whether or not there are notable changes in the patient's condition since the history and physical was recorded.
- b. Patients involved in the Short Stay Surgery Service may have their packed cell volume, WBC, direct blood smear, and routine urinalysis done within one month prior to admission and surgery, providing no recurrent or intercurrent conditions which would affect those values are present.
- c. All patients should report to the short stay reception desk in the Emergency Room 1½ hours prior to the scheduled time for their procedure.

- d. All must have been NPO since midnight the preceding night including patients for local anesthesia.
- e. ALL MUST HAVE SOMEONE TO ACCOMPANY THEM FROM THE HOSPITAL TO THEIR HOME WHEN DISCHARGED. THEY MUST NOT BE ALONE AT HOME FOR THE FIRST 24 HOURS POST-OPERATIVELY.
- f. All should be informed that it is possible they might require admission to the hospital in the event of a medical, surgical or anesthetic need.
- g. Patients should be informed and sign consent regarding operative procedure and anesthetic to be done on a short stay basis.
- h. Discussions relating to anesthetic management will be held with the unmedicated patient after arrival in the hospital. Parents or legal guardians of minors MUST remain in the Emergency Room until the patient is seen by the anesthesiologist.
- i. All patients receiving an anesthetic administered by the Department of Anesthesia will be interviewed and discharged from the PARU by a member of the Anesthesia staff.
- j. Preferably, patients should be seen by the surgeon immediately post-recovery, either in the PARU or in his office. Specific written instructions regarding telephone contact, return visits, or post-procedural orders should be left for the patient in the PARU or the Emergency Room.
- k. All patients should be advised as to procedure for contacting proper physician help in the event of post-procedure complications.

V. Pre-operative Medication

- a. Ordered by staff anesthesiologist.
- b. If the physician responsible for the operative procedure has any preference concerning pre-operative medication, he should contact the staff anesthesiologist and discuss it with him.
- c. Pre-operative meds are not to be administered in the Emergency Room unless ordered by the staff anesthesiologist.

Physician's Office and Patient Handling

I. Scheduling

- a. Contact surgical suite to schedule patient; specify that the patient is in the Short Stay Surgery Service. All Clinic Short Stay Surgery patients are to be sent to the Short Stay Surgery desk with chart for complete instructions.
- b. All Clinic patients will need to call the Short Stay Surgery desk between 3:30 and 5:00 p.m. the day prior to their scheduled surgery for the correct admission time. Exception: Patients who are not scheduled through the Short Stay Surgery desk should be instructed to arrive 1½ hours in advance of the procedure and report to the short stay receptionist in ER.
- c. A short stay brochure should be given to each patient with the instruction card. "I have received and read Short Stay instructions" should be noted or stamped on the patient's chart and signed by the patient.

II. Pre-registration

- a. The patient should report to Admitting in advance of the surgery for pre-admission.
- b. When a pre-admission has been completed, a Short Stay Surgery Service pre-admission packet containing the patient's summary sheet, armband, address plate, and consents will be forwarded to the Emergency Room. A supply of advance registration forms can be obtained by calling the Hospital Admitting Office, 624-1144 (ext. 307) and a supply will be forwarded to the physician's office.

III. Patient Handling

- a. IF IT IS NOT POSSIBLE FOR THE PATIENT TO BE PRE-ADMITTED, THE PATIENT SHOULD REPORT ONE AND ONE-HALF HOURS PRIOR TO SURGERY TO THE SHORT STAY SURGERY DESK IN ER.
- b. The short stay receptionist will register the patient, note the patient's arrival time on the chart, and insure that proper lab work is completed and placed in the chart.
- c. The patient will wait in the EMERGENCY ROOM WAITING AREA prior to changing clothes in the Short Stay changing area.
- d. Enemas are to be administered at home.
- e. The patient will change clothes in the Short Stay area and be escorted via stretcher or wheelchair to the surgical suite by the surgery transportation orderly. The patient's clothes will be stored in the Short Stay locker area.
- f. Upon notification by surgery, the patient is to be transported to surgery for pre-operative medication.
- g. After the procedure has been performed, the patient will be transported to the Recovery Room.
- h. Following final review by the staff anesthesiologist, the patient will be taken to the area designated by the attending physician for final evaluation and discharged through the ER. The patient will be taken to the Clinic office for final evaluation by a Clinic physician when ordered on the chart.
- i. The short stay receptionist is responsible for confirming that arrangements have been made for transportation home by someone other than the patient.
- j. UPON DISCHARGE, THE PATIENT MUST BE ESCORTED BY SOMEONE THE ENTIRE ROUTE HOME. THERE MUST BE SOMEONE WITH THEM AT HOME FOR THE FIRST 24 HOURS POST-OPERATIVELY.

IV. The doctor's office scheduling the surgical procedure shall notify Surgery, Short Stay scheduling desk, Admitting, and the Emergency Room of any cancellations.

APPENDIX E

ADVERTISEMENT FOR POTENTIAL
SAVINGS OF AMBULATORY SURGERY

The Swedish Hospital Medical Center

747 Summit Avenue
Seattle, Washington 98104

From: **Stuart L. DuPen, M.D.**
Coordinator, The Swedish Hospital Medical Center Day Surgery
1221 Madison Street
Seattle, Washington 98124
292-2055

Attention Surgeons

***You Can Save Your Patients 65% of Usual Hospital Charges By
Using the New Swedish Hospital Day Surgery for Minor Procedures***

***Effective NOW Day Surgery Charges
Have Been Cut 34% Below Original Rates***

***If you are not using Day Surgery for minor procedures,
your patients probably are being overcharged!***

Because we believe sincerely in the hospital's responsibility for cost containment, The Swedish Hospital Medical Center last fall opened a five operating suite Day Surgery, promising to offer ambulatory surgical care at slightly more than half what that same care would cost a hospitalized patient.

Now after six months we find that charges can be even lower than originally projected. We have reviewed our costs and developed a new rate schedule (enclosed) that is 34% below our original fees. On an average, Day Surgery patients will now save 65% of the cost of having the same procedure on an in-patient basis.

DAY SURGERY AIMS to deliver the safest surgical care in a comfortable and efficient atmosphere at lowest possible cost.

DAY SURGERY IS USED for any procedure requiring local or general anesthetic but not necessitating overnight care. A breakdown of recent procedures is enclosed. These include gynecology, otolaryngology, orthopedics, vascular, plastic and urologic surgery.

DAY SURGERY INCLUDES a self-contained admitting office and lab, five complete operating rooms (one being a cysto room) and three recovery areas.

DAY SURGERY IS LOCATED on the Sixth Floor of the Arnold Medical Pavilion, adjacent to The Swedish Hospital at Madison Street and Summit Avenue.
FREE PARKING ACROSS THE STREET

PATIENT ACCEPTANCE has been excellent. Routine calls to all patients the day following surgery revealed a positive reaction to this new concept. Physicians also have been pleased with the facility.

SCHEDULING - CALL 292-2321, Swedish Hospital Main Surgical Scheduling. Operating hours: 8 a.m. to 3 p.m. weekdays except Wednesday when hours are 9 a.m. to 3 p.m. Scheduling problems may be referred to Barbara Levinski, 292-2567.

BILLING Most major insurance firms cover Day Surgery charges in the same manner as in-patient surgery. The Swedish Hospital business office will be happy to check on any patient's personal policy prior to surgery. Call 292-2291.

PRIVILEGES Surgical privileges are extended to the surgical staff of The Swedish Hospital Medical Center. New memberships are encouraged. For information call 292-2281.

RESTRICTIONS Day Surgery patients should be those not expected to require overnight care.

No open procedures of the cranium, chest or abdomen are scheduled.

Hospitalized patients who are ambulatory may be accepted for Day Surgery during their hospitalization.

ENCLOSURES Billing Schedule based on time in the operating room, number of nursing personnel assisting and type of anesthetic.

Billing Comparison contrasting cost of same procedure in Day Surgery and Swedish Hospital Main Surgery.

List of recent procedures done at Day Surgery.

Day Surgery Patient Brochure and pre-admitting form.

CAPABILITY The Swedish Hospital Medical Center has made every effort to lower surgical charges while maintaining the hospital's traditionally high quality of care. The Day Surgery can accommodate up to 40 cases a day.

To keep costs low and ensure continuation of the Day Surgery as a viable facility of Swedish Hospital, a reasonable volume of patients must be maintained. Physicians using this facility find it a time-saving service. The physician arrives only at the appointed time and is free to leave immediately after completion of the procedure. The patient is discharged by the anesthesiologist.

THE SWEDISH HOSPITAL MEDICAL CENTER
DAY SURGERY

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The following is a partial listing of procedures in most common categories for the period November 1 through March 15. This is not a complete report, but is intended to show representative cases which have been successfully treated on an outpatient basis.

Gynecology --- 270

D & C
laparoscopic tubal ligation
laparoscopy
cervical polyps
hymenotomy
VTOP
cervical conization

Plastic --- 52

facial lesions
facial relaxation
neck scar

rhinoplasty
rhytidectomy
blepharoplasties

Ophthalmology --- 16

Ptosis
blepharoplasty
entropion repair

Otolaryngology --- 150

nasal septum
laryngoscopy
myringotomy
T & A
lymph node exc.
nasal polyps

General Surgery --- 125

exc axillary node
breast biopsy
polypectomy
anal fissure
v. veins
exc basal cell ca
gynecomastia

Orthopedics --- 97

bunions
Morton's neuroma
pharyngectomy

arthroscopy
carpal tunnel release
dupuytren's release

toenail removal

Blocks --- 75

Vascular --- 72

cannula removal
A-V fistula
venous revision
initial cannulation

Urology --- 60

cystoscopy
circumcision
vasectomy
bladder neck dilation
ureth stricture & polyps
prostatic needle biopsy